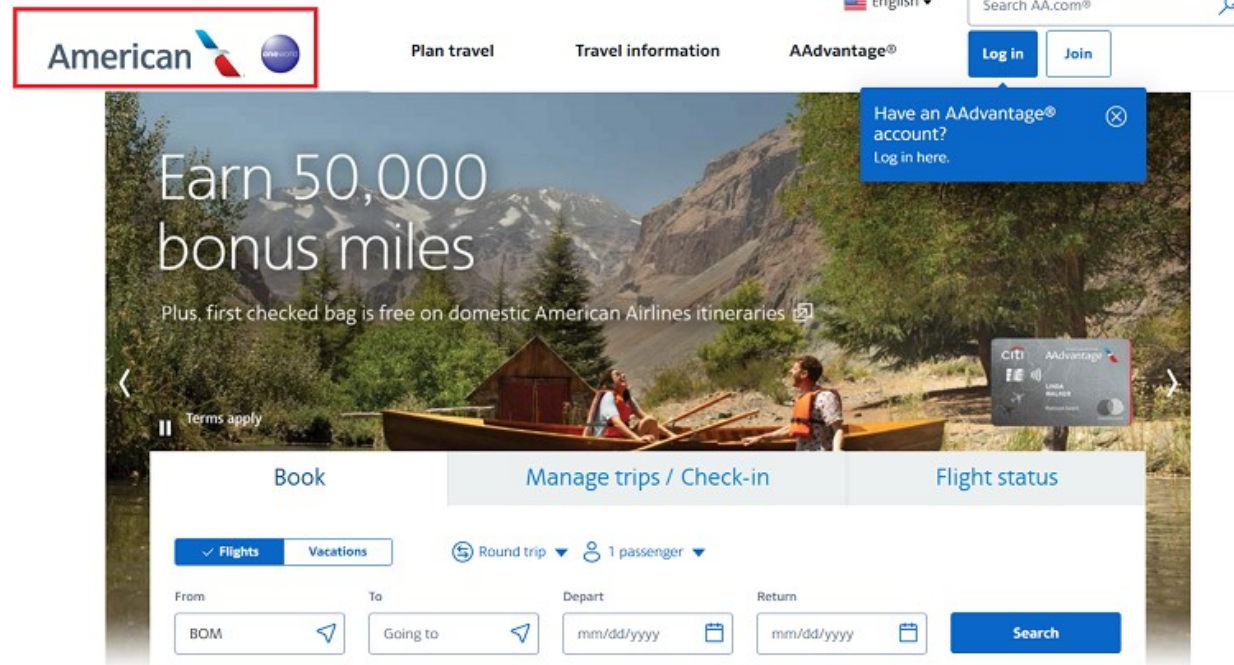


# Exhibit 2

US8677116B1	American Airline's website "aa.com" ("The accused instrumentality")
<p>1. A method of using a computer system to authenticate a user seeking to conduct at least one interaction with a secured capability provided by a computer, the method comprising:</p>	<p>The accused instrumentality practices a method of using a computer system (e.g., authentication server of the accused instrumentality, etc.) to authenticate a user seeking to conduct at least one interaction (e.g., account login, etc.) with a secured capability provided by a computer (e.g., server of the accused instrumentality).</p> <p>As shown, the website of the accused instrumentality practices providing secure connection with a user's device (electronic device of the user) through HTTPS connections. This is achieved by an authentication server (a computer system) authenticating users seeking to perform actions such as account login, job searches, etc., (interactions) ensuring that interactions with secured features are protected from unauthorized access.</p>



The screenshot shows the American Airlines homepage. At the top, there is a navigation bar with the American Airlines logo (highlighted with a red box), links for "Plan travel", "Travel information", and "AAdvantage®", and "Log in" and "Join" buttons. A search bar with the text "Search AA.com®" is also present. Below the navigation bar, a large banner features a scenic image of a lake and mountains. The banner text reads "Earn 50,000 bonus miles" and "Plus, first checked bag is free on domestic American Airlines itineraries". A blue pop-up box in the top right corner of the banner asks "Have an AAdvantage® account? Log in here." with a close button. Below the banner, there are three tabs: "Book", "Manage trips / Check-in", and "Flight status". The "Book" tab is active, showing options for "Flights" and "Vacations". Below these, there are fields for "From" (BOM), "To" (Going to), "Depart" (mm/dd/yyyy), and "Return" (mm/dd/yyyy), along with a "Search" button. A small image of a Citi AAdvantage credit card is also visible on the right side of the banner.

<https://www.aa.com/homePage.do>



The screenshot displays the American Airlines website's AAdvantage program login page. At the top, the American Airlines logo is highlighted with a red box. Below the logo, a large grey rectangular area is labeled "Banner". Further down, a red box highlights the personalized greeting: "Hi PRASAD, welcome to the AAdvantage® program!". Below this, the URL <https://www.aa.com/loyalty/login> is shown. The bottom portion of the image shows a browser window with the address bar displaying "aa.com/homePage.do", which is also highlighted with a red box. A security overlay is visible, showing "aa.com" and "Connection is secure", with the latter highlighted by a red box. Other elements in the browser window include the website's navigation menu, a search bar, and a "Log in" button. A blue notification box on the right side of the browser window prompts the user to "Have an AAdvantage® account? Log in here."

American Airlines

Plan travel Travel information AAdvantage® Log in

Banner

Hi PRASAD, welcome to the AAdvantage® program!

<https://www.aa.com/loyalty/login>

aa.com/homePage.do

aa.com

Connection is secure

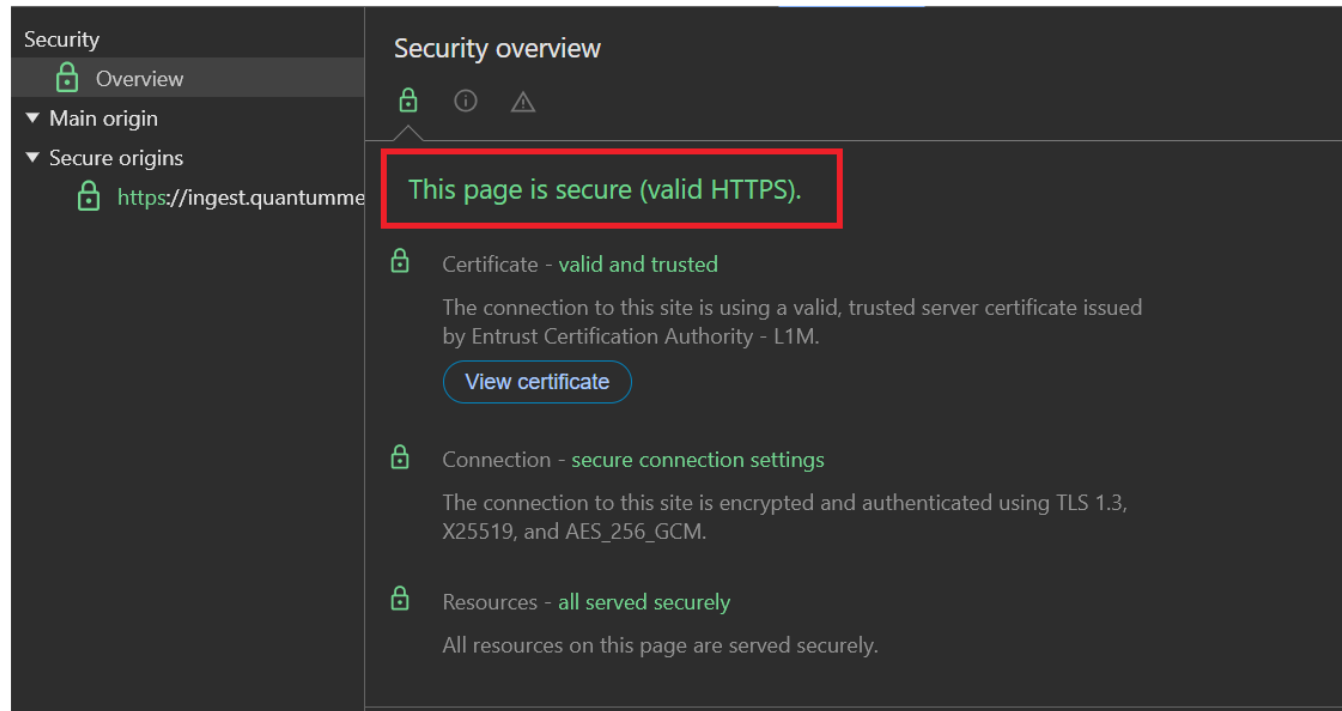
Cookies and site data

Ad privacy

Site settings

Have an AAdvantage® account? Log in here.

<https://www.aa.com/homePage.do>



<https://www.aa.com/homePage.do>



Source: Fiddler capture of the accused instrumentality

Name	Value	Do...	Path	Expires / Max-Age	Size	HttpO...	Secure	SameSite	Partition...	Cross Site	Priority
JSESSIONID	DAEBAEA330F6DF9CDE1B18FA5FC70...	w...	/	Session	42	✓	✓				Medium
KROUTEID	eb7a9eaf63cea5a7af6a1b26cd4081e8...	w...	/	Session	73	✓	✓				Medium
OPT0492	B_OPT0492_Exp hp-booking-widget 2...	w...	/	Session	98		✓				Medium
OPTCKMS	n	.aa...	/	2025-02-20T06:51:43.000Z	8						Medium
OPTOUTMULTI	0:0%7Cc1:0%7Cc3:0	.aa...	/	2025-02-20T06:51:43.000Z	28						Medium
OPTOUTMULTI_EXP	Thu, 20 Feb 2025 06:51:43 GMT	.aa...	/	2025-02-20T06:51:43.000Z	44						Medium
QSI_HistorySession	https%3A%2F%2Fwww.aa.com%2Floy...	w...	/	Session	129		✓				Medium
QuantumMetricSessionID	2c92a8004d61ab9e00a4a2eab9802b5c	.aa...	/	2024-11-22T10:26:55.000Z	54		✓	None			Medium
QuantumMetricUserID	d85681e5345f547b026967123e4f170a	.aa...	/	2025-11-22T09:44:35.000Z	51		✓	None			Medium
ROUTEID	IKSS.blue	w...	/	2024-11-22T10:13:02.030Z	16						Medium
RT	*z=1&dm=www.aa.com&si=3c6703a...	w...	/	2024-11-29T09:44:31.000Z	95			Lax			Medium
TDCPM	CAESFgoHcnViaWNvbhILCKagy-aXi8...	.ad...	/	2025-11-22T09:44:33.070Z	797		✓	None			Medium
TDID	c68eaa1d-9b3f-4a9e-b2aa-e0bfae3b...	.ad...	/	2025-11-22T09:44:33.070Z	40		✓	None			Medium
TLS40H50	0	w...	/	2025-02-20T06:51:43.000Z	9						Medium
UAC	143cdd3a7158451186e7ab4eadc6ed7e	w...	/	2025-12-27T06:51:42.204Z	35		✓				Medium
X-AK-PIM-INJECT	sync	w...	/	Session	19						Medium

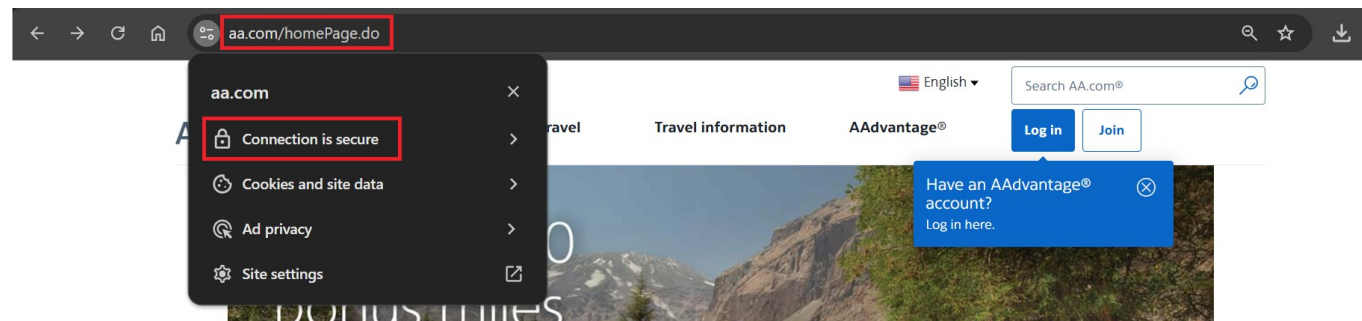
<https://www.aa.com/homePage.do>

using the computer system to receive a first signal from the computer providing the secured capability, the first signal comprising a reusable identifier corresponding to the secured capability, the reusable identifier assigned for use by the secured capability for a finite period of time;

The accused instrumentality practices using the computer system (e.g., authentication server of the accused instrumentality, etc.) to receive a first signal (e.g., a ROUTEID set response, etc.) from the computer (e.g., server of the accused instrumentality) providing the secured capability (e.g., secure connection with the website, etc.), the first signal comprising a reusable identifier (e.g., ROUTEID, etc.) corresponding to the secured capability (e.g., secure connection with the website, etc.), the reusable identifier assigned for use by the secured capability for a finite period of time (e.g., Max-Age).

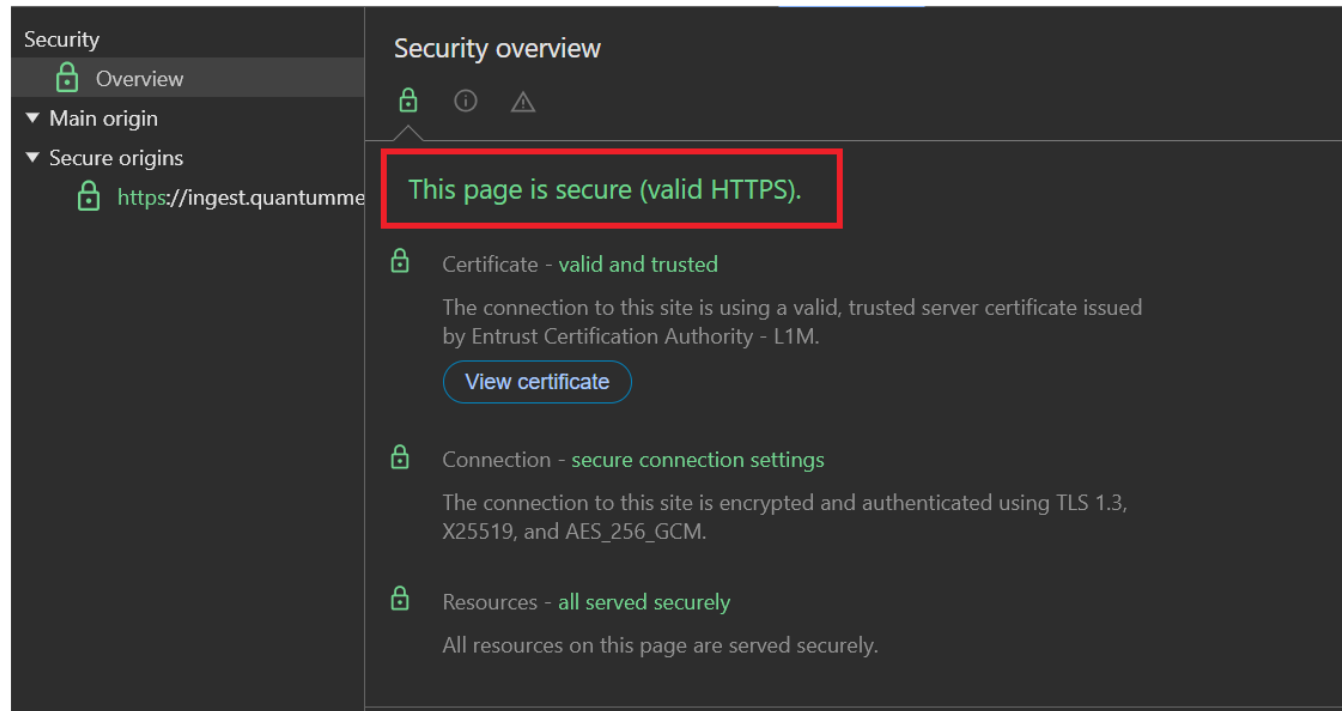
As shown, the website of the accused instrumentality practices providing secure connection with a user's device (electronic device of the user) through HTTPS connections. This is achieved by an authentication server (a computer system) authenticating users seeking to perform actions such as account login, etc., (interactions) ensuring that interactions with secured features are protected from unauthorized access. The server sends a response to set ROUTEID value, which is set by the user device.

As shown, the ROUTEID token set by the end device is reused in all further communications with the server. The ROUTEID token also mentions a Max-Age for the token, indicating that it can be reused for a finite period.



<https://www.aa.com/homePage.do>





<https://www.aa.com/homePage.do>



Source: Fiddler captures of the accused instrumentality

Name	Value	Do...	Path	Expires / Max-Age	Size	HttpO...	Secure	SameSite	Partition...	Cross Site	Priority
JSESSIONID	DAEBAEA330F6DF9CDE1B18FA5FC70...	w...	/	Session	42	✓	✓				Medium
KROUTEID	eb7a9eaf63cea5a7af6a1b26cd4081e8...	w...	/	Session	73	✓	✓				Medium
OPT0492	B_OPT0492_Exp hp-booking-widget 2...	w...	/	Session	98		✓				Medium
OPTCKMS	n	.aa...	/	2025-02-20T06:51:43.000Z	8						Medium
OPTOUTMULTI	0:0%7Cc1:0%7Cc3:0	.aa...	/	2025-02-20T06:51:43.000Z	28						Medium
OPTOUTMULTI_EXP	Thu, 20 Feb 2025 06:51:43 GMT	.aa...	/	2025-02-20T06:51:43.000Z	44						Medium
QSL_HistorySession	https%3A%2F%2Fwww.aa.com%2Floy...	w...	/	Session	129		✓				Medium
QuantumMetricSessionID	2c92a8004d61ab9e00a4a2eab9802b5c	.aa...	/	2024-11-22T10:26:55.000Z	54		✓	None			Medium
QuantumMetricUserID	d85681e5345f547b026967123e4f170a	.aa...	/	2025-11-22T09:44:35.000Z	51		✓	None			Medium
ROUTEID	IKSS.blue	w...	/	2024-11-22T10:13:02.030Z	16						Medium
RT	*z=1&dm=www.aa.com&si=3c6703a...	.w...	/	2024-11-29T09:44:31.000Z	95			Lax			Medium
TDCPM	CAESFgoHcnViaWNvbhlCKagy-aXl8...	.ad...	/	2025-11-22T09:44:33.070Z	797		✓	None			Medium
TDID	c68eaa1d-9b3f-4a9e-b2aa-e0bfae3b...	.ad...	/	2025-11-22T09:44:33.070Z	40		✓	None			Medium
TL540H50	0	.w...	/	2025-02-20T06:51:43.000Z	9						Medium
UAC	143cdd3a7158451186e7ab4eadc6ed7e	.w...	/	2025-12-27T06:51:42.204Z	35		✓				Medium
X-AK-PIM-INJECT	sync	w...	/	Session	19						Medium

<https://www.aa.com/homePage.do>

The image contains two screenshots of Fiddler's 'Request Headers' tab. Both screenshots show an HTTP request with various headers. In both, the header 'ROUTEID=IKSS.blue' is highlighted with a red box and labeled 'Reusable identifier' in red text.

**Top Screenshot:** The request is a POST to '/rb\_bf04553ytd?'. The headers include 'OPTOUTMULTI=0:0%7Cc1:0%7Cc3:0', 'QSI\_HistorySession=https%3A%2F%2Fwww.aa.com%2Floyalty%2Fenrollment%2Fenroll%3Ffrom%3Dcomp\_nav~17322', 'QuantumMetricSessionID=2c92a8004d61ab9e00a4a2eab9802b5c', 'QuantumMetricUserID=d85681e5345f547b026967123e4f170a', and 'ROUTEID=IKSS.blue'. There is also an 'RT' section with 'z=1' and 'dm=www.aa.com'.

**Bottom Screenshot:** The request is a GET to '/AtVvXc/Jsf2GP/UhFxP9/PKexfrNC/0/QYO56tw1fy1u/cCYfZCEC/ETc0/W3ccDj8 HTTP/1.1'. The headers include 'mboxEdgeCluster=41', 'OPT0492=B\_OPT0492\_Exp|hp-booking-widget|20241111-OPT0492-AB-HP-Booking-Widget-Server-Side-Test-PROD', 'OPTCKMS=n', 'OPTOUTMULTI\_EXP=Thu, 20 Feb 2025 06:51:43 GMT', 'OPTOUTMULTI=0:0%7Cc1:0%7Cc3:0', 'QSI\_HistorySession=https%3A%2F%2Fwww.aa.com%2Floyalty%2Fenrollment%2Fenroll%3Ffrom%3Dcomp\_nav~17322', 'QuantumMetricSessionID=2c92a8004d61ab9e00a4a2eab9802b5c', 'QuantumMetricUserID=d85681e5345f547b026967123e4f170a', and 'ROUTEID=IKSS.blue'. There is also an 'RT' section with 'z=1' and 'dm=www.aa.com'.

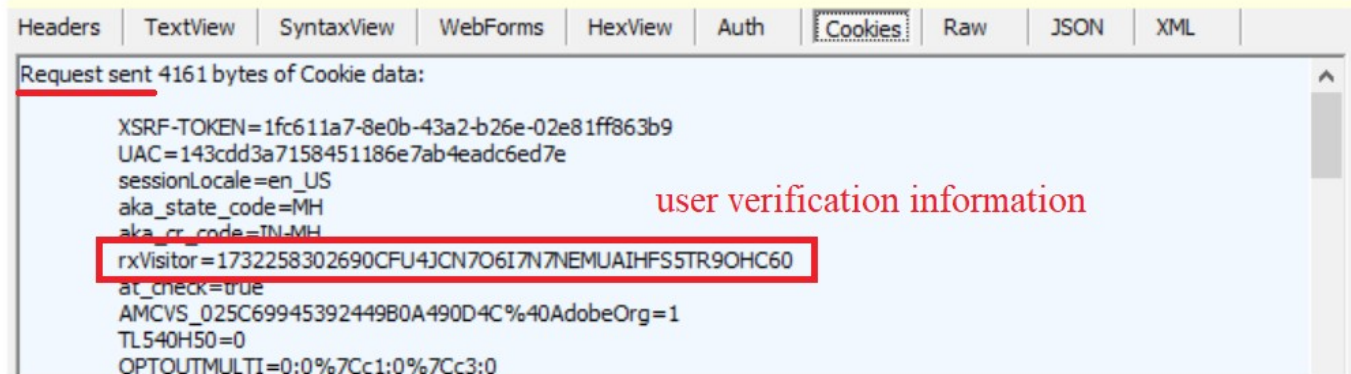
second signal from an electronic device being used by the user, the second signal comprising a copy of the reusable identifier and user verification information;

(e.g., a request signal from the user device) from an electronic device being used by the user, the second signal (e.g., request signal from the user device) comprising a copy of the reusable identifier (e.g., ROUTEID, etc.) and user verification information (e.g., rxVisitor).

When the server sends a message containing an ROUTEID to the user device, the client includes a copy of the ROUTEID in all subsequent requests to the server, along with user verification information (e.g., rxVisitor credentials). This allows the server to authenticate the client for the duration of the session and ensure secure communication between the client and server.



Source: Fiddler Capture of the accused instrumentality



The screenshot shows the 'Cookies' tab in Fiddler. The text area displays 'Request sent 4161 bytes of Cookie data:' followed by a list of cookies. A red box highlights the 'rxVisitor' cookie value. A red annotation 'user verification information' points to the 'aka\_cr\_code' and 'rxVisitor' cookies.

```
Headers | TextView | SyntaxView | WebForms | HexView | Auth | Cookies | Raw | JSON | XML
Request sent 4161 bytes of Cookie data:
XSRF-TOKEN=1fc611a7-8e0b-43a2-b26e-02e81ff863b9
UAC=143cdd3a7158451186e7ab4eadc6ed7e
sessionLocale=en_US
aka_state_code=MH
aka_cr_code=TN-MH
rxVisitor=1732258302690CFU4JCN7O6I7N7NEMUAIHFSSTR9OHC60
at_check=true
AMCVS_025C69945392449B0A490D4C%40AdobeOrg=1
TL540H50=0
OPTOUTMULTI=0:0%7Cc1:0%7Cc3:0
```

Source: Fiddler capture of the accused instrumentality



The screenshot shows the 'Cookies' tab in Fiddler. The text area displays a list of cookies. A red box highlights the 'ROUTEID' cookie value. A red annotation 'the second signal comprising a copy of the reusable identifier' points to the 'ROUTEID' cookie.

```
Headers | TextView | SyntaxView | WebForms | HexView | Auth | Cookies | Raw | JSON | XML
_gd_au=1.1.507214269.1732258305
QuantumMetricUserID=d85681e5345f547b026967123e4f170a
OPT0492=B_OPT0492_Exp|hp-booking-widget|20241111-OPT0492-AB-HP-Booking-Widget-Server-Side-Test-PROD
al=0
s_sq=%5B%5B%5D%5D
_fbp=fb.1.1732258314476.89935556667487536
QuantumMetricSessionID=2c92a8004d61ab9e00a4a2eab9802b5c
KROUTEID=eb7a9eaf63cea5a7af6a1b26cd4081e8|b1f37ed7f54333e7fed5541bf6553ced
dtCookie=v_4_srv_3_sn_97858845F626016C22C90F2A94A0CC91_perc_100000_ol_0_mul_1_app-
3A8b2a7e44ceb3fcd4_1_app-3A165a5cc5c5fd7c11_1_rcs-3Acss_0
1SESSIONID=CD0FF3D2876F65C771221563762C1685
ROUTEID=IKSS.blue
AKA_AZ=A
mboxEdgeCluster=41
ak_bmsc=
```

Source: Fiddler capture of the accused instrumentality

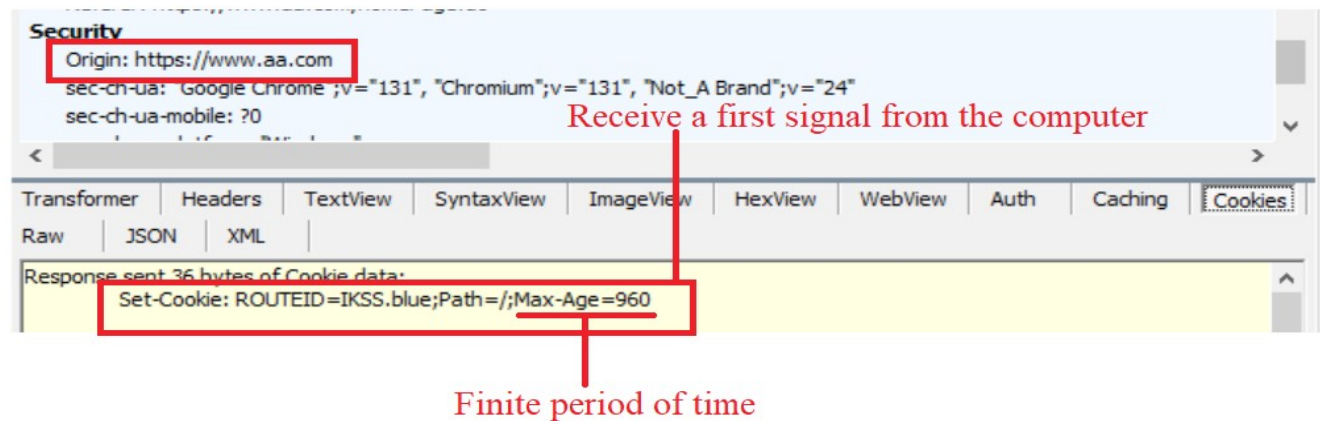
using a processor of the computer system to evaluate, based at least

The accused instrumentality practices using a processor of the computer system (e.g., processor of the authentication server of the accused instrumentality, etc.) to evaluate, based at least on the first signal (e.g., a ROUTEID set response, etc.) and

on the first signal and the second signal, whether the user is authorized to conduct the at least one interaction with the secured capability; and

the second signal (e.g., a request signal from the user device), whether the user is authorized to conduct the at least one interaction (e.g., account login, etc.) with the secured capability (e.g., secure connection with the website, etc.).

The server compares the reusable identifier, such as the token (e.g., ROUTEID), in the first response received from the server with the token included in the client's subsequent request. If a match is found, the server authenticates the user and processes the request securely.



Source: Fiddler captures of the accused instrumentality



Cookies



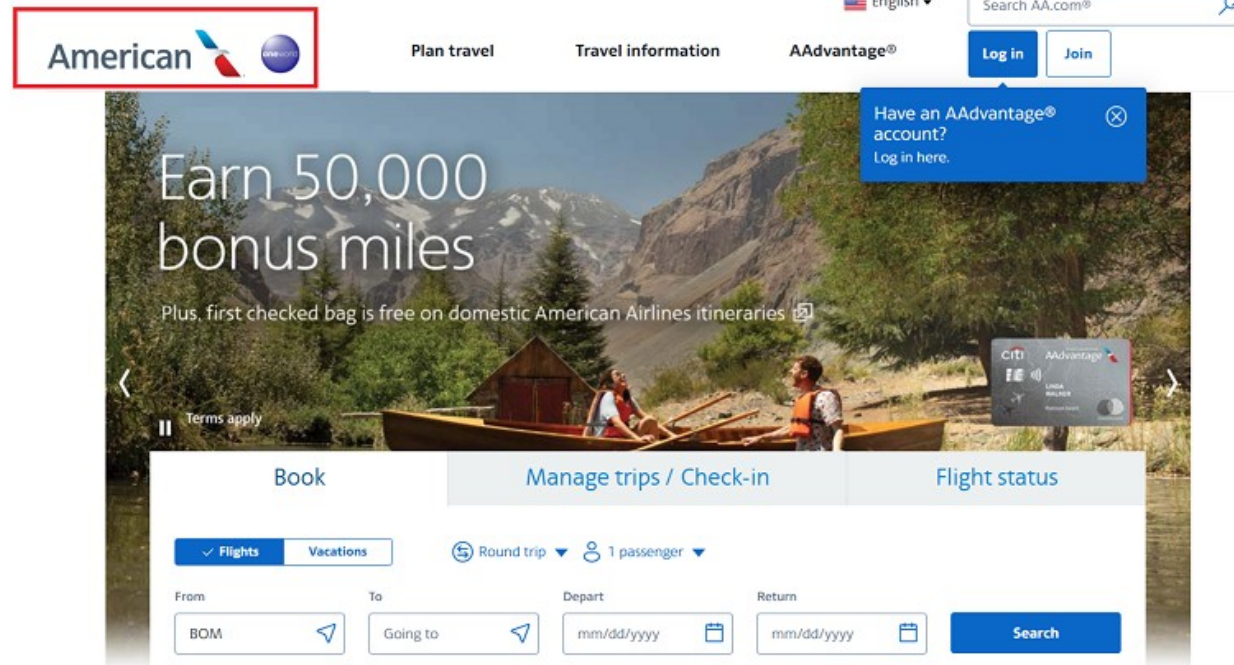
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## Cookies

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The screenshot shows the American Airlines homepage. At the top, there is a navigation bar with the American Airlines logo (highlighted with a red box), links for "Plan travel", "Travel information", and "AAdvantage®", and buttons for "Log in" and "Join". A search bar on the right says "Search AA.com®". Below the navigation bar is a large banner with the text "Earn 50,000 bonus miles" and "Plus, first checked bag is free on domestic American Airlines itineraries". A blue pop-up box on the right asks "Have an AAdvantage® account? Log in here." Below the banner is a navigation bar with "Book", "Manage trips / Check-in", and "Flight status". Under "Book", there are tabs for "Flights" and "Vacations". Below these are fields for "From" (BOM), "To" (Going to), "Depart" (mm/dd/yyyy), and "Return" (mm/dd/yyyy), along with a "Search" button. A small image of a Citi AAdvantage credit card is also visible.

<https://www.aa.com/homePage.do>



	<div><div><div>American Airlines</div><div>PLAN TRAVELTRAVEL INFORMATIONAADVANTAGE®</div></div><div><div>Home</div><div>English</div><div>Search AA.com®</div></div><div><div>Log in</div><div>You can log in with your AAdvantage number or username and password. <a href="#">Join AAdvantage today »</a></div><div><div>( • Required)</div><div><div>AAdvantage # or username •</div><div>Password • ⓘ</div></div><div><div><input type="text"/></div><div><input type="text"/></div><div><input type="checkbox"/> Remember me</div></div><div><a href="#">Need help logging in? ⓘ</a></div></div></div></div>
	<div><a href="https://www.aa.com/loyalty/login">https://www.aa.com/loyalty/login</a></div>

The screenshot displays the American Airlines website's AAdvantage program login page. At the top, the American Airlines logo is highlighted with a red box. The navigation bar includes links for "Plan travel", "Travel information", and "AAdvantage®", along with a "Log in" button. A large grey rectangular area is labeled "Banner". Below this, a message "Hi PRASAD, welcome to the AAdvantage® program!" is highlighted with a red box. The URL <https://www.aa.com/loyalty/login> is shown below the message. The bottom section of the image shows a browser window with the address bar displaying "aa.com/homePage.do", which is also highlighted with a red box. A security overlay is visible, showing "aa.com" and "Connection is secure", with the latter highlighted by a red box. Other elements in the browser window include a search bar, a "Log in" button, and a "Join" button. A blue notification box on the right side of the browser window says "Have an AAdvantage® account? Log in here." with a close button.

American Airlines logo

Plan travel Travel information AAdvantage® Log in

Banner

Hi PRASAD, welcome to the AAdvantage® program!

<https://www.aa.com/loyalty/login>

aa.com/homePage.do

aa.com

Connection is secure

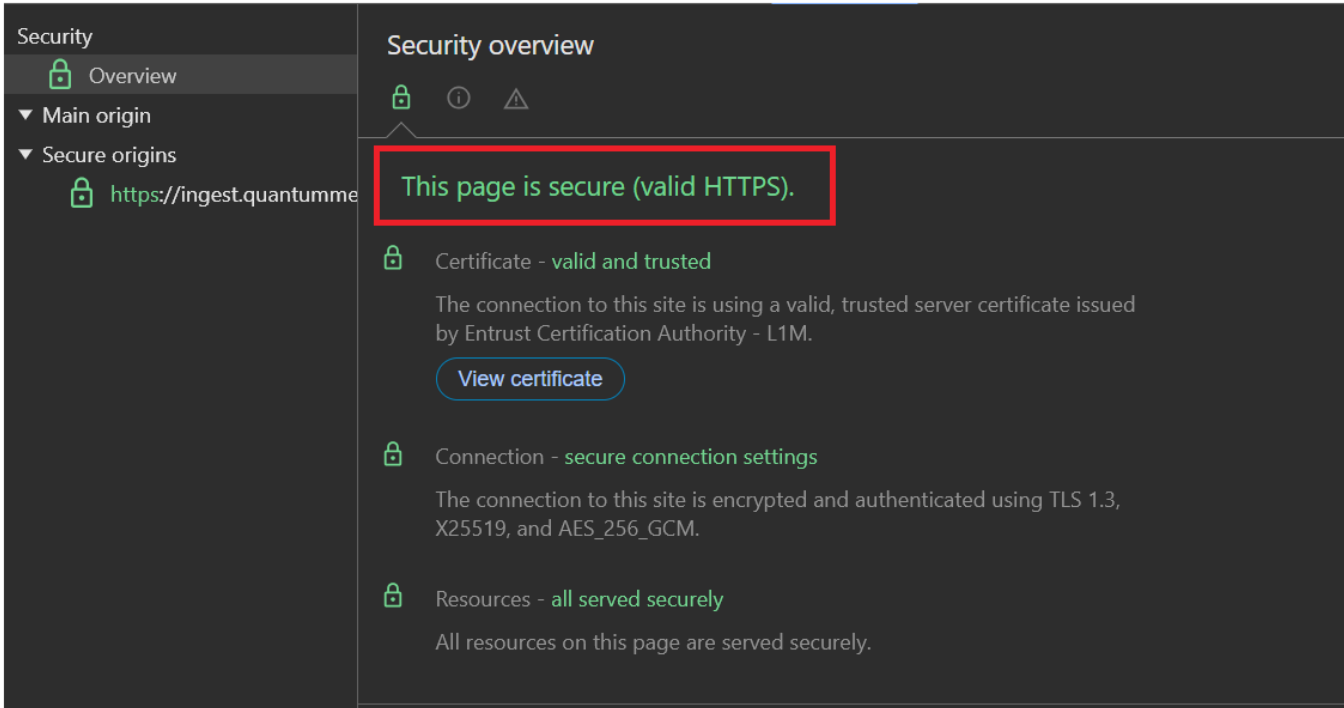
Cookies and site data

Ad privacy

Site settings

Have an AAdvantage® account? Log in here.

<https://www.aa.com/homePage.do>

	 <p><a href="https://www.aa.com/homePage.do">https://www.aa.com/homePage.do</a></p>
<p>in response to an indication from the processor that the user is authorized to conduct the at least one interaction with the secured capability, using the computer system to transmit a third signal</p>	<p>The accused instrumentality practices in response to an indication from the processor (e.g., processor of the authentication server of the accused instrumentality, etc.) that the user is authorized to conduct the at least one interaction with the secured capability (e.g., secure connection with the website, etc.), using the computer system processor (e.g., authentication server of the accused instrumentality, etc.) to transmit a third signal comprising authorization information (e.g., a response signal from the server to the user device, etc.) to at least one of the electronic device (e.g., user device, etc.) and the computer.</p>

comprising authorization information to at least one of the electronic device and the computer.

As shown, upon authenticating the ROUTEID, the user device receives an authentication confirmation message (a third signal), from the server to the user device.



Source: Fiddler capture of the accused instrumentality

English Search AA.com®

American Plan travel Travel information AAdvantage® Log in Join

Earn 50,000 bonus miles

Plus, first checked bag is free on domestic American Airlines itineraries

Terms apply

Have an AAdvantage® account? Log in here.

Citi AAdvantage

Book Manage trips / Check-in Flight status

Flights Vacations Round trip 1 passenger

From To Depart Return

BOM Going to mm/dd/yyyy mm/dd/yyyy Search

<https://www.aa.com/homePage.do>